

# PATENT SPECIFICATION

(11) 1 437 479

1 437 479

- (21) Application No. 26587/73 (22) Filed 4 June 1973  
 (23) Complete Specification filed 18 June 1974  
 (24) Complete Specification published 26 May 1976  
 (51) INT CL<sup>7</sup> F24F 5/00  
 (52) Index at acceptance  
 F4S 41C 41E  
 F4W 1



## (54) IMPROVEMENTS IN OR RELATING TO HUMIDIFIERS

(71) I, ERIC GREASLEY, a British Subject of Heightside, 261, Haslingden Old Road, Rawtenstall, Lancashire, BB4 8RR, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to humidifiers for premises which are heated by central heating installations utilising radiators or gas fires.

It is well known that heating tends to reduce the relative humidity of air to such an extent that artificial humidification is often necessary to moisten the air. This is caused by the fact that as the air temperature rises owing to the heating, the amount of water vapour that the air holds before being saturated is increased whereas the amount of water vapour in the air remains constant. This reduction in the relative humidity has many disadvantages including damage to furniture and articles stored in the premises and discomfort to people breathing the air.

It is also known that radiators commonly darken the wall to which they are fixed due to deposition in the wall of dirt from the warm rising airstream which they produce.

According to this invention there is provided a humidifier for use in conjunction with a radiator or gas fire, comprising an elongate container for holding water and having a plurality of openings for allowing evaporation of the water to the ambient atmosphere, the container having a first flat surface and a second surface inclined thereto at an angle less than 90° arranged whereby the container can be mounted above the radiator or the gas fire with the first surface substantially horizontal to provide a shelf and the second surface projecting outwardly and downwardly to provide a baffle for rising air.

Embodiments of the invention will now be described in more detail in conjunction with the accompanying drawings in which:

Fig. 1 shows a sectional perspective view of a first embodiment of the invention when mounted above a radiator;

Fig. 2 shows a front view of a second embodiment of the invention;

Fig. 3 shows a section along the lines A—A of fig. 2; and

Fig. 4 shows a section through a third embodiment of the invention when mounted upon a gas fire.

Referring firstly to Fig. 1, the container 2 is made from a pre-cut blank of 18swg. sheet mild steel. The blank is bent into a hollow generally prismatic trough which is the same length as the radiator 4 upon which it is to stand. The container 2 has a flat rear surface 6 and a flat top surface which lies at 91° to the rear surface 6. In this way, with the rear surface 6 in contact with the wall upon which the radiator is mounted, the surface 8 will present a substantially horizontal shelf surface for receiving articles of all sorts. The angle of 91° allows for a small backward slant to cause articles to roll backward rather than forward if disturbed. An inclined surface 10 joins the top surface 8 to the rear surface 6 and is concave so as to assist in location of the bottom portion of the container between the radiator and the wall 12, the surfaces 6 and 10 meeting in a line so that with the surface 6 contacting the wall 12, the surface 10 rests upon the top of the radiator to receive the heat therefrom.

The top surface 8 and the surface 10 meet in a vertical flange 14 which runs along the front of the container. A filler opening which is closed by a simple push fit plug 16 is provided in the top surface 8 for measuring and topping up the water level in the container. The water level will normally be of the order of 1" to 1¼" from the bottom of the container.

Above the water level a row of louvres 18 is provided in the inclined surface 10. Each louvre is approximately 2" wide and is formed by pressing the material of the container inwardly so that rising water vapour is

caused to flow outwardly into the atmosphere.

In use, the container is part filled with water and placed upon the radiator. Mounting brackets (not shown) may be attached to the rear surface 6 for affixing to the wall to more securely hold the container in place. Heat from the radiator is communicated by conduction to the surface 10 of the container to heat the water and cause evaporation. The water vapour diffuses through the louvres and is carried upward by the convected air from the radiator moving over the inclined surface 10. It will be apparent that the surface 10 faces outwardly and downwardly so as to act as a baffle to the rising air and prevent it or tend to prevent it contacting the wall above the radiator and thereby causing soiling of the wall.

The water may have additives included so as to scent the air such as disinfectants or perfumes. The container may be finished in any suitable manner for example by being stove enamelled and may have a top surface which is decorative or may be arranged to support a shelf of polished wood.

Referring now to Figs. 2 and 3, there is shown a second embodiment of the invention which is very similar to the first embodiment in having a flat rear surface 6', a flat upper surface 8' at right angles thereto and an inclined surface 10'. Louvres 18' are formed by pressing the material of the inclined surface 10' inwardly. The container is formed from a first portion of 16swg. mild steel bent to form the rear surface 6' and the inclined surface 10' with flanges 20 and 21 arranged at right angles to and parallel to the rear surface respectively. The inclined surface 10' is for convenience of manufacture flat. The container is completed by a U-shaped channel member providing the upper surface 8' and a pair of flanges 22 and 23 which closely surround the rear surface 6' and the flange 21 respectively and are attached thereto by any suitable method preferably by welding.

To thoroughly seal the connection between flange 22 and the rear surface 6' a length of adhesive tape 24 is applied to the connection along the length of the container. Furthermore, a strip of foam material 25 is attached along the length of the container at the uppermost edge of the flange 22 to contact the wall when the container is in place to form a seal with the wall.

Each end of the container is formed by a flat metal portion not shown of the shape of the interior of the container with a flange around the edge, which portion is welded into the end of the container with the flange thereof outermost.

In an alternative construction, the end portions are formed of a plastic material

with a channel around the outside edge for receiving the end of the container by a press fit.

The container is formed of mild steel which is preferably coated with stove enamel. Alternatively the container may be of stainless steel or the channel member forming the upper surface 8 may be of stainless steel with the remainder of the container of mild steel.

Referring now to Fig. 4, there is shown schematically a humidifier according to the invention for use in conjunction with a gas fire. The humidifier comprises an elongate container 30 having a flat base 31, and an upper surface 33 substantially parallel to the base 31 so as to provide a shelf. The surface 33 overhangs the base 31 and is connected thereto by an inclined flat surface 34 arranged at an angle of about 45°. The surface 34 is provided with louvred openings 35 similar to those of the embodiments of Figs. 1, 2 and 3. The container has a rear surface 32 for contacting the wall above the gas fire.

The container 30 has a filling opening (not shown) for receiving water which, with the container in place upon a gas fire, receives heat from the upper surface of the fire (indicated at 36) to heat the water and cause evaporated water vapour to escape through the louvres 35 to the ambient atmosphere.

#### WHAT I CLAIM IS:—

1. A humidifier for use in conjunction with a radiator or gas fire, comprising an elongate container for holding water and having a plurality of openings for allowing evaporation of the water to the ambient atmosphere, the container having a first flat surface and a second surface inclined thereto at an angle less than 90° arranged whereby the container can be mounted above the radiator or the gas fire with the first surface substantially horizontal to provide a shelf and the second surface projecting outwardly and downwardly to provide a baffle for rising air.

2. A humidifier as claimed in 1, wherein the openings are arranged in the second surface.

3. A humidifier as claimed in 2, wherein the openings are louvred formed by pressing the material forming said second surface out of said surface.

4. A humidifier as claimed in 1, 2 or 3, including a further flat surface substantially at right angles to the first surface for contacting a wall upon which the radiator or gas fire is mounted.

5. A humidifier as claimed in claim 4, which is for use with a gas fire having a flat horizontal upper surface, and which includes a flat surface parallel to said first surface for resting upon the upper surface of the fire and for receiving heat therefrom.

6. A humidifier as claimed in 4 or 5, including mounting means for fixing said container to the wall.
- 5 7. A humidifier as claimed in any preceding claim, including a filling opening in said first flat surface.
8. A humidifier as claimed in any preceding claim, wherein said second surface is concave.
- 10 9. A humidifier as claimed in any preceding claim, formed from metal.
10. A humidifier substantially as herein before described with reference to Fig. 1, Figs. 2 and 3 or Fig. 4 of the accompanying drawings. 15
11. A space heating arrangement comprising a humidifier as claimed in claim 4 and a radiator, the humidifier being mounted above the radiator such that the further flat surface contacts the wall whilst the second surface rests upon the top of the radiator for receiving heat therefrom. 20

ERIC GREASLEY.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1976.  
Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from  
which copies may be obtained.

1437479

COMPLETE SPECIFICATION

2 SHEETS

*This drawing is a reproduction of  
the Original on a reduced scale*  
Sheet 1

FIG. 1

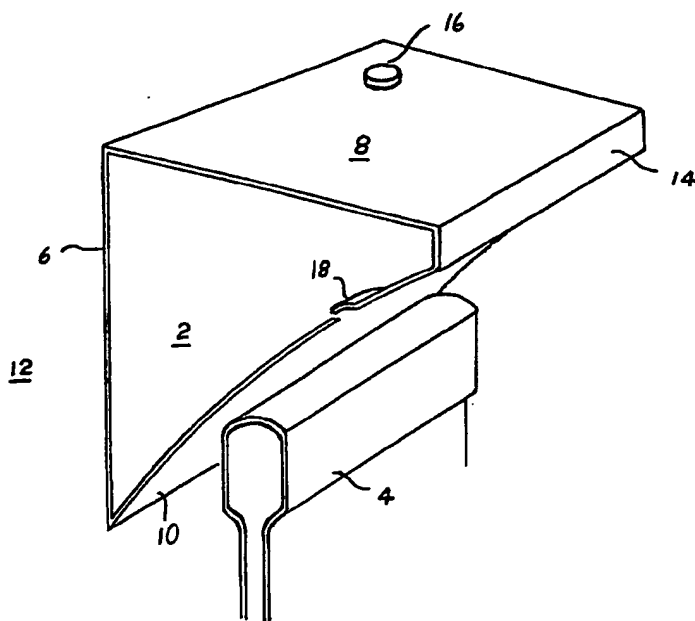


FIG. 2

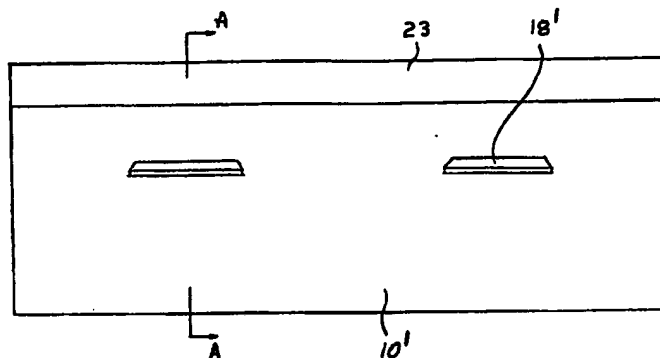


FIG. 3

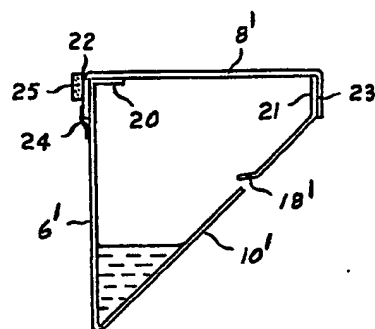


FIG. 4

